Claims

1. A device for sending or receiving optical signals, wherein an opto-electrical transducer, together with an associated glass fiber and other elements provided for a sending or receiving circuit, are arranged on a common support, **characterized in that**

- the support is a circuit board (1) comprising different multiple layers of insulation material and intermediate layers of metal, with a recess (2) containing an opening (3) and a bottom (4) on which conducting tracks (10) are installed and at least some of them are impedance-matched,
- the transducer and the other elements are entirely located in the recess (2) without projecting from it, and are connected to the conducting tracks (10),
- at least some of the conducting tracks (10) protrude laterally from the recess (2) to the surrounding edge areas of the circuit board (1), where at least some of them are connected to impedance-matched conductors (11) that extend to a common surface on the inside of the circuit board (1) where they respectively end on a contact surface (12),
- the glass fiber (8) exits from the recess (2) through an opening in the circuit board (1), and
- an electrically active shield is installed around the circuit board (1).

2. A device as claimed in claim 1, **characterized in that** the conducting tracks (10) used to conduct high-frequency signals are designed as impedance-matched waveguides, in particular as microstrips.

3. A device as claimed in claim 2, **characterized in that** the opening (3) of the recess (2) is closed by a plate (9).

4. A device as claimed in claim 3, **characterized in that** the plate (9) is made of metal.

5. A device as claimed in claim 4, **characterized in that** the contact surfaces (12) of the conductors (11) are installed on the surface of the circuit board (1) in which the opening (3) of the recess (2) is located.

6. A device as claimed in claim 5, **characterized in that** the contact surfaces are distributed around the recess (2).

7. A device as claimed in claim 6, **characterized in that** the impedance-matched conductors (11) are respectively designed as coaxial lines with an internal conductor (14) that is connected in a reflection-free manner to the impedance-matched conducting tracks (10), and with feedthrough contacts (15) that are arranged concentrically around the latter and have clearance with respect to each other, which are interconnected to conduct electricity at least at one point, and are connected to ground.

8. A device as claimed in claim 6, **characterized in that** the impedance-matched conductors (11) are respectively designed as differential coaxial double conductor lines with internal conductors (14a, 14b) that are connected in a reflection-free manner to the impedance-matched conducting tracks (10), and with feedthrough contacts (15) that are arranged concentrically around the latter and have clearance with respect to each other, which are interconnected to conduct electricity at least at one point, and are connected to ground.

9. A device as claimed in claim 8, **characterized in that** metallic surfaces (16) are located on the bottom of the recess (2), on which heat producing elements are installed and are connected in a heat-conducting manner to

metallic surfaces (17) located on an open surface of the circuit board (1).

10. A device as claimed in claim 1, **characterized in that** the opening (3) of the recess (2) is closed by a plate (9).

11. A device as claimed in claim 10, **characterized in that** the plate (9) is made of metal.

12. A device as claimed in claim 1, **characterized in that** the contact surfaces (12) of the conductors (11) are installed on the surface of the circuit board (1) in which the opening (3) of the recess (2) is located.

13. A device as claimed in claim 12, **characterized in that** the contact surfaces are distributed around the recess (2).

14. A device as claimed in claim 1, **characterized in that** the impedance-matched conductors (11) are respectively designed as coaxial lines with an internal conductor (14) that is connected in a reflection-free manner to the impedance-matched conducting tracks (10), and with feedthrough contacts (15) that are arranged concentrically around the latter and have clearance with respect to each other, which are interconnected to conduct electricity at least at one point, and are connected to ground.

15. A device as claimed in claim 1, **characterized in that** the impedance-matched conductors (11) are respectively designed as differential coaxial double conductor lines with internal conductors (14a, 14b) that are connected in a reflection-free manner to the impedance-matched conducting tracks (10), and with feedthrough contacts (15) that are arranged concentrically around the latter and have clearance with respect to each other, which are

interconnected to conduct electricity at least at one point, and are connected to ground.

16. A device as claimed in claim 1, **characterized in that** metallic surfaces (16) are located on the bottom of the recess (2), on which heat producing elements are installed and are connected in a heat-conducting manner to metallic surfaces (17) located on an open surface of the circuit board (1).